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(54) **BATTERY CONNECTOR ADAPTER**

BATTERIEANSCHLUSSADAPTER

ADAPTATEUR DE CONNECTEUR DE BATTERIE

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Description

1. Field of the Invention

[0001] The invention relates to a use of a battery adapter (2) for detachably connecting a first wire set (3a), a second wire set (3b), a rechargeable battery (B) and a battery charger (C).

2. Description of the Related Art

[0002] The webpage <https://item.jd.com/64565757727.html> (retrieved on 24 September 2020) shows a junction box for an electric meter box, which has two-in and four-out conductive lines. According to the purpose, the two-in and four-out conductive lines disposed in the junction box are utilized to delivering electric power.

[0003] EP 2506024A1 discloses a battery tester having high precision, which has a casing having an input device and two detecting wires, a microprocessor, a variable loading unit and a battery power status detecting unit. The microprocessor builds a strategic decision process therein to determine a proper resistance of a load for a battery according to the battery capacity, initial voltage and detection requirements having 1/N CCA and loading time. When the resistance of the load is determined, the microprocessor adjusts a resistance of the variable loading unit equal to the resistance of the load for the battery.

[0004] Furthermore, EP2081039A2 discloses that a detachable battery status alarm has an alarm device and at least one battery detector. The battery detector is directly mounted on the battery and electronically connected to the battery. The alarm device links to the battery detector to obtain the battery status in a physical connection or a wireless connection.

[0005] In addition, EP 3462199A2 discloses a battery pack diagnostic apparatus including a communication port, a measurer, and a controller. The communication port provides an electrical connection between the battery pack diagnostic apparatus and a battery management system. The measurer is electrically connected to an output terminal of the battery pack and is configured to measure a voltage and a current of the battery pack. The controller is configured to obtain a first measurement value with respect to a voltage and a current of the battery pack from the battery management system. The controller is further configured to obtain a second measurement value with respect to a second voltage and a second current of the battery pack from the measurer. The controller analyzes a state of the battery pack based on the first measurement value and the second measurement value.

[0006] Moreover, CN 106785155A, which is related to the field of cell safety, discloses a battery safety detection device, a battery module and an electric automobile. The battery module comprises a plurality of unit batteries and an assembly plate, wherein a plurality of positioning

holes is formed in the assembly plate with the unit batteries being arranged in the positioning holes. The battery safety detection device comprises a power supply, a detection device, a control device and an alarming device, wherein the detection device is arranged on the assembly plate and is arranged near each positioning hole. As such, the detection device is connected with the control device, the control device is connected with the alarming device, and the power supply is connected with the detection device, the control device and the alarming device. The detection device is used for sending a triggering signal to the control device when the temperature of one unit battery exceeds a preset value, and the control device is used for controlling the alarming device to give an alarm when receiving the triggering signal.

[0007] A rechargeable battery is an electronic device widely applied in various fields, and not only needs to be charged but also needs to be tested.

[0008] Please refer to FIG. 1A and FIG. 1B, which are circuit diagrams of a conventional rechargeable battery B during charging and testing. For charging the rechargeable battery B, the positive terminal and the negative terminal of the rechargeable battery B need to be connected to the positive terminal and the negative terminal of the battery charger C through two transmission lines. For testing the rechargeable battery B, the positive terminal and the negative terminal of the rechargeable battery B need to be connected to the positive terminals and the negative terminals 13, 14, 15, 16 of the test instrument T through four transmission lines.

[0009] However, the test instrument T for testing the rechargeable battery B mostly uses a four-line structure wire set of Kelvin connection to obtain higher accuracy, but the battery charger C does not need the four-line structure wire set. Instead, the battery charger C only needs a two-line structure wire set for being connected to the positive terminal and the negative terminal of the rechargeable battery B to charge the rechargeable battery B. Therefore, when the rechargeable battery B needs to be operated between charging and testing, the two-line structure wire set and the four-line structure wire set need to be alternatively connected to the rechargeable battery B by repeatedly plugging and unplugging the two-line structure wire set and the four-line structure wire set. Accordingly, the structure wastes much time and is not convenient for the user.

[0010] Thereby, how to provide a battery connector adapter to solve the problem mentioned above is an urgent subject to tackle.

[0011] As aforementioned, the invention concerns a use of a battery adapter (2) for detachably connecting a first wire set (3a), a second wire set (3b), a rechargeable battery (B) and a battery charger (C). The battery adapter (2) includes a housing (21), a positive electrode terminal (22), a negative electrode terminal (23), two positive electrode connectors (24), two negative electrode connectors (25), and two fuses (28). The positive electrode terminal (22) is mounted to the housing (21), wherein the

positive electrode terminal (22) is configured to connect to a positive terminal (11) of the battery charger (C). The negative electrode terminal (23) is mounted to the housing (21), wherein the negative electrode terminal (23) is configured to connect to a negative terminal (12) of the battery charger (C). The two positive electrode connectors (24) are mounted to the housing (21) and electrically connected to the positive electrode terminal (22) respectively by two first transmission lines (26), wherein the two positive electrode connectors (24) are configured to detachably connect to two polarity connectors (33a, 34a) of the first wire set (3a). The two negative electrode connectors (25) are mounted to the housing (21) and electrically connected to the negative electrode terminal (23) respectively by two second transmission lines (27), wherein the two negative electrode connectors (25) are configured to detachably connect to two polarity connectors (33b, 34b) of the second wire set (3b). The two fuses (28) are respectively configured to electrically connect to the two first transmission lines (26) or configured to respectively electrically connect to the two second transmission lines (27); wherein the two first transmission lines (26) and the two second transmission lines (27) are disposed in the housing (21); wherein two terminals (31a, 32a) of the wire set (3a) are configured to connect to a positive terminal of a rechargeable battery (B) and two terminals (31b, 32b) of the wire set (3b) are configured to connect to a negative terminal of the rechargeable battery (B).

[0012] When the user wants to test the rechargeable battery, the user can directly connect a test instrument to the rechargeable battery through a four-line structure wire set.

[0013] When the user wants to charge the rechargeable battery, the user can connect a battery charger to the positive electrode terminal and the negative electrode terminal of the battery connector adapter through a two-line structure wire set, and further can connect the two positive electrode connectors and the two negative electrode connectors of the battery connector adapter to the rechargeable battery through the four-line structure wire set.

[0014] In summary, the battery connector adapter of the invention provides a design of an adaptor, which facilitates the user not to repeatedly plug the four-line structure wire set in the rechargeable battery and pull the wire set from the rechargeable battery. Instead, the four-line structure wire set can be fixed on the positive electrode terminal and the negative electrode terminal of the rechargeable battery. Therefore, the actions for plugging and un-plugging are easy to perform by interconnecting the battery connector adapter of the invention, and then the user can immediately switch to connect to the battery charger or the test instrument so that the user can swiftly perform charging and testing the rechargeable battery and the accuracy for testing the rechargeable battery can be sustained.

IN THE DRAWINGS

[0015]

FIG. 1A and FIG. 1B are circuit diagrams of a conventional rechargeable battery performing to charge and test;

FIG. 2A and FIG. 2B are stereo diagrams of the battery connector adapter of the invention;

FIG. 2C is a profile diagram of the battery connector adapter of the invention;

FIG. 2D is a profile diagram of the battery connector adapter in another embodiment of the invention;

FIG. 3A is a schematic diagram of a wire set connected to the battery connector adapter;

FIG. 3B is a circuit diagram showing that the battery connector adapter is connected to the rechargeable battery by the wire set and the battery charger;

FIG. 3C is a circuit diagram showing that the battery connector adapter is connected to the test instrument by the wire set; and

FIG. 4 is a block diagram of the battery connector adapter of the invention.

[0016] Please refer to FIG. 2A to FIG. 2C, which are stereo diagrams and a profile diagram of the battery connector adapter of the invention. The battery connector adapter 2 includes a housing 21, a positive electrode terminal 22, a negative electrode terminal 23, two positive electrode connectors 24, and two negative electrode connectors 25. The positive electrode terminal 22, the negative electrode terminal 23, the two positive electrode connectors 24, and the two negative electrode connectors 25 are disposed in the housing 21. The two positive electrode connectors 24 are electrically connected to the positive electrode terminal 22 respectively by two first transmission lines 26, and the two negative electrode connectors 25 are electrically connected to the negative electrode terminal 23 respectively by two second transmission lines 27, wherein the two first transmission lines 26 and the two second transmission lines 27 are disposed in the housing 21.

[0017] The battery connector adapter 2 further includes two fuses 28, which are respectively electrically connected to the two first transmission lines 26 or respectively electrically connected to the two second transmission lines 27. The fuses 28 include resettable fuses or non-resettable resettable fuses. The battery connector adapter 2 further includes two fuse bases (not shown in the figure), which are connected to the two first transmission lines 26 or connected to the two second transmission lines 27. The two fuses 28 are disposed in the two fuse bases. Moreover, the two fuses 28 are detachably mounted in the fuse bases so that the two fuses 28 can be replaced when burned out.

[0018] The battery connector adapter 2 further includes a fool-proof design. In details, in an embodiment of the invention, at least one projecting part 211 is dis-

posed in the housing 21, wherein at least one of the positive electrode terminal 22, the negative electrode terminal 23, the two positive electrode connectors 24 and the two negative electrode connectors 25 is disposed in the at least one projecting part 211 so as to be clearly identified as different terminals or connectors by a user. Accordingly, the user can avoid mismatching the terminals or connectors and avoid a short circuit by simultaneously touching the positive terminal and the negative terminal. In the embodiment, the two positive electrode connectors 24 are disposed in the at least one projecting part 211. In another embodiment of the invention, the positive electrode terminal 22, the negative electrode terminal 23, the two positive electrode connectors 24, and the two negative electrode connectors 25 can be disposed in the housing 21, that is, all of the terminals and the connectors can be disposed inside the housing 21 instead of protruding out of the housing. In other words, in the embodiment of the invention, the positive electrode terminal 22, the negative electrode terminal 23, the two positive electrode connectors 24 and the two negative electrode connectors 25 can be disposed in an exterior of the housing 21 or disposed in an interior of the housing 21. Accordingly, the invention is not limited thereto. In addition, the housing 21 of the battery connector adapter 2 includes a waterproofing material, which can avoid a short circuit when water is sprayed to the battery connector adapter 2.

[0019] Please refer to FIG. 2D, which is a profile diagram of the battery connector adapter in another embodiment of the invention. In the embodiment, the functions of all the elements are the same as the functions of the elements of the battery connector adapter 2 in FIG. 2C, but the difference is that the positive electrode terminal 22, the negative electrode terminal 23, the two positive electrode connectors 24, and the two negative electrode connectors 25 are disposed in different positions of the housing 21. Therefore, the positions of the two first transmission lines 26 and the two second transmission lines 27 disposed in the housing 21 respectively correspond to the positions of the two positive electrode connectors 24 and the two negative electrode connectors 25 and are disposed across in the housing 21, as shown in FIG. 2D.

[0020] Please refer to FIG. 3A, FIG. 3B and FIG. 3C, FIG. 3A is a schematic diagram of a wire set connected to the battery connector adapter and the rechargeable battery, FIG. 3B is a circuit diagram showing that the battery connector adapter is connected to the rechargeable battery B by the wire set and the battery charger C, and FIG. 3C is a circuit diagram showing that the battery connector adapter is connected to the test instrument T by the wire set. The wire set 3a and wire set 3b are respectively connected between the positive terminal and the negative terminal of the rechargeable battery B and the two positive electrode connectors 24 and the two negative electrode connectors 25 of the battery connector adapter 2. The wire set 3a and the wire set 3b have the same

structure, and therefore, only the wire set 3a is labeled in FIG. 3A.

[0021] As shown in FIG. 3B, the wire set 3a has two terminals 31a, 32a and two polarity connectors 33a, 34a. The wire set 3b has two terminals 31b, 32b and two polarity connectors 33b, 34b. When the user wants to charge the rechargeable battery B, the two terminals 31a, 32a of the wire set 3a are connected to the positive terminal of the rechargeable battery B, and the two polarity connectors 33a, 34a of the wire set 3a are connected to the two positive electrode connectors 24 of the battery connector adapter 2. The two terminals 31b, 32b of the wire set 3b are connected to the negative terminal of the rechargeable battery B, and the two polarity connectors 33b, 34b of the wire set 3b are connected to the two negative electrode connectors 25 of the battery connector adapter 2. The positive electrode terminal 22 and the negative electrode terminal 23 of the battery connector adapter 2 are respectively connected to the positive terminal 11 and the negative terminal 12 of the battery charger C. Accordingly, the connection between the rechargeable battery B and the battery charger C is completed by the battery connector adapter 2 and the wire sets 3a, 3b.

[0022] Please refer to FIG. 3C, when the user wants to test the rechargeable battery B, the wire sets 3a, 3b respectively connected to the positive terminal and the negative terminal of the rechargeable battery B are stationary, that is, the two terminals 31a, 32a of the wire set 3a and the two terminals 31b, 32b of the wire set 3b maintain to be connected to the positive terminal and the negative terminal of the rechargeable battery B instead of being pulled from the rechargeable battery B. The user only needs to remove the battery connector adapter 2 connected to the two polarity connectors 33a, 34a, 33b, 34b of the wire sets 3a, 3b, and respectively connect the two polarity connectors 33a, 34a, 33b, 34b of the wire sets 3a, 3b to the positive terminal and the negative terminal 13, 14, 15, 16 of the test instrument T to perform the connection for the test instrument T. Accordingly, the connection between the rechargeable battery B and the test instrument T is directly completed by the wire sets 3a, 3b.

[0023] Please refer to FIG. 4, which is a block diagram of the battery connector adapter of the invention. In the embodiment, the battery connector adapter 2 can further increase amounts of the terminals and the connectors. In details, the battery connector adapter 2 includes a thermal sensing terminal 291 and a thermal sensing connector 292, connected to a peripheral temperature display(not shown in the figure), which are used to display a temperature value of the rechargeable battery B while the battery charger C or the test instrument T is connected to the rechargeable battery B. The thermal sensing terminal 291 can be disposed in the housing 21 or disposed in the rechargeable battery B. The thermal sensing connector 292 can be disposed in the housing 21 and connected to the thermal sensing terminal 291 by at least one third

transmission line 293. The at least one third transmission line 293 is disposed in the housing 21. Furthermore, in the embodiment of the invention, the positive electrode terminal 22 and the negative electrode terminal 23 are a SAE terminal, and the two positive electrode connectors 24 and the two negative electrode connectors 25 are a banana connector. The invention is not limited thereto.

[0024] As mentioned above, the battery connector adapter 2 includes a rechargeable battery detecting circuit 20, which is used to detect the voltage, the current, the temperature, the internal resistance and the conductance of the rechargeable battery B while the rechargeable battery detecting circuit 20 is electrically connected to the rechargeable battery B. The rechargeable battery detecting circuit 20 includes a thermal indicator 294, which is used to detect the temperature of the rechargeable battery B while the battery charger C charges the rechargeable battery B. The battery connector adapter 2 includes a current indicator 295, which is used to detect the current of the rechargeable battery B while the battery charger C charges the rechargeable battery B. The battery connector adapter 2 includes a voltage indicator 296, which is used to detect the voltage of the rechargeable battery B while the battery charger C charges the rechargeable battery B.

[0025] As mentioned above, the battery connector adapter 2 includes a wireless communication element 297, disposed in the housing 21 and electrically connected to the thermal indicator 294 of the rechargeable battery detecting circuit 20. The wireless communication element 297 is used to wirelessly transmit the temperature of the rechargeable battery B to a smart device, a cloud network or a server. The wireless communication element 297 is electrically connected to the current indicator 295 of the rechargeable battery detecting circuit 20 to wirelessly transmit the current of the rechargeable battery B to the smart device, the cloud network or the server. The wireless communication element 297 is electrically connected to the voltage indicator 296 of the rechargeable battery detecting circuit 20 to wirelessly transmit the voltage of the rechargeable battery B to the smart device, the cloud network or the server. In the embodiment of the invention, the technology for wireless transmission includes ZeeBee/ bluetooth/ wifi/ GPRS/ GSM/ WiMAX/ Dedicated Short Range Communications (DSRC)/ Wireless Access in Vehicular Environments (WAVE), and so on. The smart device includes the smart phone and the tablet. The server includes the desktop and the notebook. Accordingly, the user can use the wireless transmission technology, the smart phone and the server to remotely monitor the state of the rechargeable battery B. Furthermore, the battery connector adapter 2 includes a hard-wire communication element 298, electrically connected to the thermal indicator 294, the current indicator 295 and the voltage indicator 296 mentioned above, is used to display the value of voltage, the value of current and the value of the temperature of the rechargeable battery B. It should be noted that there

is only one hard-wire communication element 298 in FIG. 4, simultaneously electrically connected to the voltage indicator 296, the current indicator 295 and the thermal indicator 294, but in fact, the battery connector adapter 2 can include a plurality of hard-wire communication elements 298, separately electrically connected to the voltage indicator 296, the current indicator 295, and the thermal indicator 294. The invention is not limited thereto. In the embodiment of the invention, the technology for hard-wire communication includes Controller Area Network (CAN BUS), Local Interconnect Network (LIN BUS), Flex Ray, Media Oriented Systems Transport (MOST), USB, General Purpose Input Output (GPIO), RS232, RS485 and Inter-Integrated Circuit (IIC Bus).

[0026] As mentioned above, the battery connector adapter 2 further includes an indicator light 299, disposed in the housing 21 and electrically connected to the rechargeable battery detecting circuit 20. The indicator light 299 is used to display the state whether the battery connector adapter 2 is successfully electrically connected to the rechargeable battery B, or is used to send out an alert signal to warn the user while the rechargeable battery detecting circuit 20 is electrically connected to the rechargeable battery B and the rechargeable battery B cannot be successfully charged. In addition, the indicator light 299 includes a monitor (not shown in the figure), electrically connected to the wireless communication element 297, the voltage indicator 296, the current indicator 295 and the thermal indicator 294 of the rechargeable battery detecting circuit 20. The monitor is used to display the state that the battery connector adapter 2 is wirelessly connected to the smart device, the voltage value, the current value, the temperature value, the internal resistance value and the conductance value of the rechargeable battery B.

[0027] As mentioned above, the battery connector adapter 2 further includes a switch 290, disposed in the housing 21 and electrically connected to the wireless communication element 297. The wireless communication element 297 controls the switch 290 by a wireless signal to swiftly turn on or turn off the rechargeable battery B electrically connected to the battery connector adapter 2 and wirelessly transmits the state that the rechargeable battery B is turned on or turned off to the smart device, the cloud network, or the server. In another embodiment of the invention, the switch 290, disposed in the housing 21 and disconnected from the wireless communication element 297, is used to swiftly turn on and turn off the battery connector adapter 2. The method for turning on and turning off the rechargeable battery B includes the manual control and the remote control performed by the smart device or the server mentioned above.

[0028] In summary, the battery connector adapter of the invention provides a design of the adaptor, which facilitates the user not to repeatedly plug the wire set in the rechargeable battery and pull the wire set from the rechargeable battery. Instead, the wire set can be fixed on the positive electrode terminal and the negative elec-

trode terminal of the rechargeable battery. Therefore, the actions for plugging the wire set in and pulling the wire set from the rechargeable battery are easy to perform by connecting the battery connector adapter of the invention. After that, the user can immediately switch the connection to the battery charger C or the test instrument T so that the user can swiftly perform charging and testing the rechargeable battery. Therefore, the accuracy for testing the rechargeable battery can be sustained.

[0029] Even though numerous characteristics and advantages of the present invention have been set forth in the foregoing description, together with details of the structure and function of the invention, the disclosure is illustrative only. Changes may be made in detail, especially in matters of shape, size, and arrangement of parts within the principles of the invention to the full extent indicated by the appended claims.

Claims

1. Use of a battery adapter (2) for detachably connecting a first wire set (3a), a second wire set (3b), a rechargeable battery (B) and a battery charger (C), wherein the battery adapter (2) includes:

a housing

a positive electrode terminal (22), mounted to the housing (21), wherein the positive electrode terminal (22) is configured to connect to a positive terminal (11) of the battery charger (C);

a negative electrode terminal (23), mounted to the housing (21), wherein the negative electrode terminal (23) is configured to connect to a negative terminal (12) of the battery charger (C);

two positive electrode connectors (24), mounted to the housing (21) and electrically connected to the positive electrode terminal (22) respectively by two first transmission lines (26), wherein the two positive electrode connectors (24) are configured to detachably connect to two polarity connectors (33a, 34a) of the first wire set (3a);

two negative electrode connectors (25), mounted to the housing (21) and electrically connected to the negative electrode terminal (23) respectively by two second transmission lines (27), wherein the two negative electrode connectors (25) are configured to detachably connect to two polarity connectors (33b, 34b) of the second wire set (3b);

two fuses (28), respectively configured to electrically connect to the two first transmission lines (26) or configured to respectively electrically connect to the two second transmission lines (27);

wherein the two first transmission lines (26) and the two second transmission lines (27) are disposed in the housing (21);

wherein two terminals (31a, 32a) of the wire set (3a) are configured to connect to a positive terminal of a rechargeable battery (B) and two terminals (31b, 32b) of the wire set (3b) are configured to connect to a negative terminal of the rechargeable battery (B);

2. The use according to claim 1, wherein the two fuses (28) include resettable fuses or non-resettable fuses.
3. The use according to claim 1, wherein the battery adapter further includes two fuse bases, respectively configured to electrically connect to the two first transmission lines (26) or respectively configured to electrically connect to the two second transmission lines (27); wherein the two fuses (28) are disposed in the two fuse bases.
4. The use according to any one of claims 1 to 3, wherein the housing (21) includes a waterproofing material.
5. The use according to any one of claims 1 to 4, wherein the housing (21) includes at least one projecting part; wherein one of the positive electrode terminal (22), the negative electrode terminal (23), the two positive electrode connectors (24), and the two negative electrode connectors (25) is disposed in the at least one projecting part.

Patentansprüche

1. Verwendung eines Batterieadapters (2) zum lösbar Verbinden eines ersten Kabelsatzes (3a), eines zweiten Kabelsatzes (3b), einer wiederaufladbaren Batterie (B) und einer Batterieladevorrichtung (C), wobei der Batterieadapter (2) aufweist:

ein Gehäuse

einen Positive-Elektrode-Anschluss (22), der an dem Gehäuse (21) montiert ist, wobei der Positive-Elektrode-Anschluss (22) konfiguriert ist, um mit einem positiven Anschluss (11) der Batterieladevorrichtung (C) verbunden zu werden; einen Negative-Elektrode-Anschluss (23), der an dem Gehäuse (21) montiert ist, wobei der Negative-Elektrode-Anschluss (23) konfiguriert ist, um mit einem negativen Anschluss (12) der Batterieladevorrichtung (C) verbunden zu werden;

zwei Positive-Elektrode-Verbindung-Einrichtungen (24), die an dem Gehäuse (21) montiert sind und mit dem Positive-Elektrode-Anschluss (22) durch zwei erste Übertragungsleitungen (26) elektrisch verbunden sind, wobei die zwei Positive-Elektrode-Verbindung-Einrichtungen (24) konfiguriert sind, um mit zwei Polarität-Ver-

- bindung-Einrichtungen (33a, 34a) des ersten Kabelsatzes (3a) lösbar verbunden zu werden; zwei Negative-Elektrode-Verbindung-Einrichtungen (25), die an dem Gehäuse (21) montiert sind und mit dem Negative-Elektrode-Anschluss (23) durch zwei zweite Übertragungsleitungen (27) elektrisch verbunden sind, wobei die zwei Negative-Elektrode-Verbindung-Einrichtungen (25) konfiguriert sind, um mit zwei Polarität-Verbindung-Einrichtungen (33b, 34b) des zweiten Kabelsatzes (3b) lösbar verbunden zu werden;
- zwei Sicherungen (28), die jeweils konfiguriert sind, um mit den zwei ersten Übertragungsleitungen (26) elektrisch verbunden zu sein oder jeweils konfiguriert sind, um mit den zwei zweiten Übertragungsleitungen (27) elektrisch verbunden zu sein;
- wobei die zwei ersten Übertragungsleitungen (26) und die zwei zweiten Übertragungsleitungen (27) in dem Gehäuse (21) angeordnet sind; wobei zwei Anschlüsse (31a, 32a) des Kabelsatzes (3a) konfiguriert sind, um mit einem positiven Anschluss einer wiederaufladbaren Batterie (B) verbunden zu werden und zwei Anschlüsse (31b, 32b) des Kabelsatzes (3b) konfiguriert sind, um mit einem negativen Anschluss der wiederaufladbaren Batterie (B) verbunden zu werden.
2. Verwendung nach Anspruch 1, wobei die zwei Sicherungen (28) rücksetzbare Sicherungen oder nicht-rücksetzbare Sicherungen aufweisen.
 3. Verwendung nach Anspruch 1, wobei der Batteriedapter ferner zwei Sicherungsbasen aufweist, die entsprechend zugeordnet konfiguriert sind, um mit den zwei ersten Übertragungsleitungen (26) elektrisch verbunden zu sein oder entsprechend zugeordnet konfiguriert sind, um mit den zwei zweiten Übertragungsleitungen (27) elektrisch verbunden zu sein; wobei die zwei Sicherungen (28) in den zwei Sicherungsbasen angeordnet sind.
 4. Verwendung nach irgendeinem der Ansprüche 1 bis 3, wobei das Gehäuse (21) ein wasserabdichtendes Material aufweist.
 5. Verwendung nach irgendeinem der Ansprüche 1 bis 4, wobei das Gehäuse (21) mindestens einen vorstehenden Teil aufweist; wobei einer von dem Positive-Elektrode-Anschluss (22), dem Negative-Elektrode-Anschluss (23), den zwei Positive-Elektrode-Verbindung-Einrichtungen (24) und den zwei Negative-Elektrode-Verbindung-Einrichtungen (25) in dem mindestens einen vorstehenden Teil angeordnet ist.

Revendications

1. Utilisation d'un adaptateur de batterie (2) pour connecter de manière amovible un premier jeu de fils (3a), un deuxième jeu de fils (3b), une batterie rechargeable (B) et un chargeur de batterie (C), dans laquelle l'adaptateur de batterie (2) comprend :
 - un boîtier,
 - une borne d'électrode positive (22), montée sur le boîtier (21), dans laquelle la borne d'électrode positive (22) est configurée pour se connecter à une borne positive (11) du chargeur de batterie (C) ;
 - une borne d'électrode négative (23), montée sur le boîtier (21), dans laquelle la borne d'électrode négative (23) est configurée pour se connecter à une borne négative (12) du chargeur de batterie (C),
 - deux connecteurs d'électrode positive (24), montés sur le boîtier (21) et connectés électriquement à la borne d'électrode positive (22) respectivement par deux premières lignes de transmission (26), où les deux connecteurs d'électrode positive (24) sont configurés pour se connecter de manière amovible à deux connecteurs de polarité (33a, 34a) du premier jeu de fils (3a) ;
 - deux connecteurs d'électrode négative (25), montés sur le boîtier (21) et connectés électriquement à la borne d'électrode négative (23) respectivement par deux deuxièmes lignes de transmission (27), où les deux connecteurs d'électrode négative (25) sont configurés pour se connecter de manière amovible à deux connecteurs de polarité (33b, 34b) du deuxième jeu de fils (3b) ;
 - deux fusibles (28), respectivement configurés pour se connecter électriquement aux deux premières lignes de transmission (26) ou configurés pour se connecter électriquement respectivement aux deux deuxièmes lignes de transmission (27) ;
 - dans laquelle les deux premières lignes de transmission (26) et les deux deuxièmes lignes de transmission (27) sont disposées dans le boîtier (21) ;
 - dans laquelle deux bornes (31a, 32a) du jeu de fils (3a) sont configurées pour se connecter à une borne positive d'une batterie rechargeable (B) et deux bornes (31b, 32b) du jeu de fils (3b) sont configurées pour se connecter à une borne négative de la batterie rechargeable (B).
2. Utilisation selon la revendication 1, dans laquelle les deux fusibles (28) comprennent des fusibles réinitialisables ou des fusibles non réinitialisables.

3. Utilisation selon la revendication 1, dans laquelle l'adaptateur de batterie comprend en outre deux bases de fusible, respectivement configurées pour se connecter électriquement aux deux premières lignes de transmission (26) ou respectivement configurées pour se connecter électriquement aux deux deuxièmes lignes de transmission (27) ; dans laquelle les deux fusibles (28) sont disposés dans les deux bases de fusible. 5 10
4. Utilisation selon l'une quelconque des revendications 1 à 3, dans laquelle le boîtier (21) comprend un matériau d'étanchéité. 15
5. Utilisation selon l'une quelconque des revendications 1 à 4, dans laquelle le boîtier (21) comprend au moins une partie en saillie ; dans laquelle l'un parmi la borne d'électrode positive (22), la borne d'électrode négative (23), les deux connecteurs d'électrode positive (24) et les deux connecteurs d'électrode négative (25) est disposé dans ladite au moins une partie en saillie. 20 25 30 35 40 45 50 55

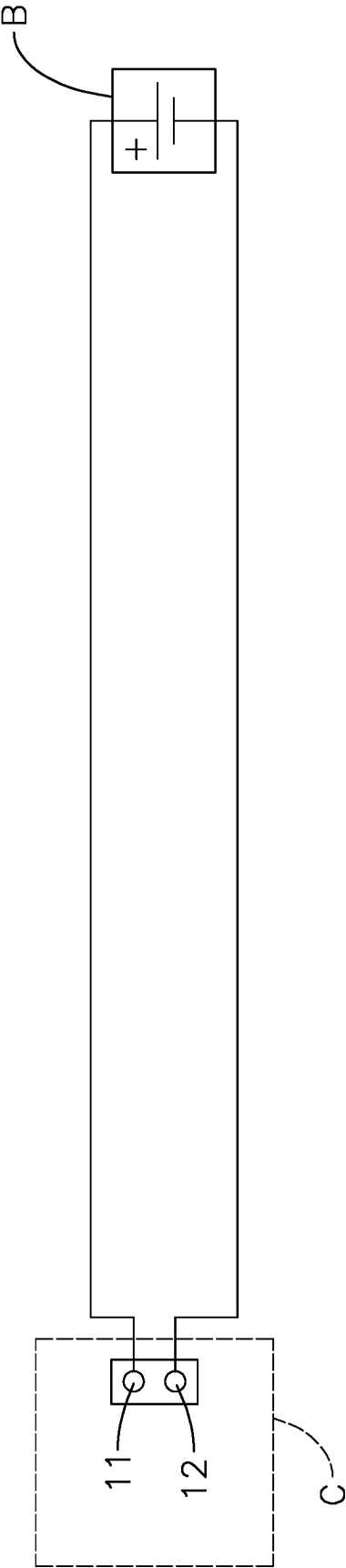


FIG. 1A

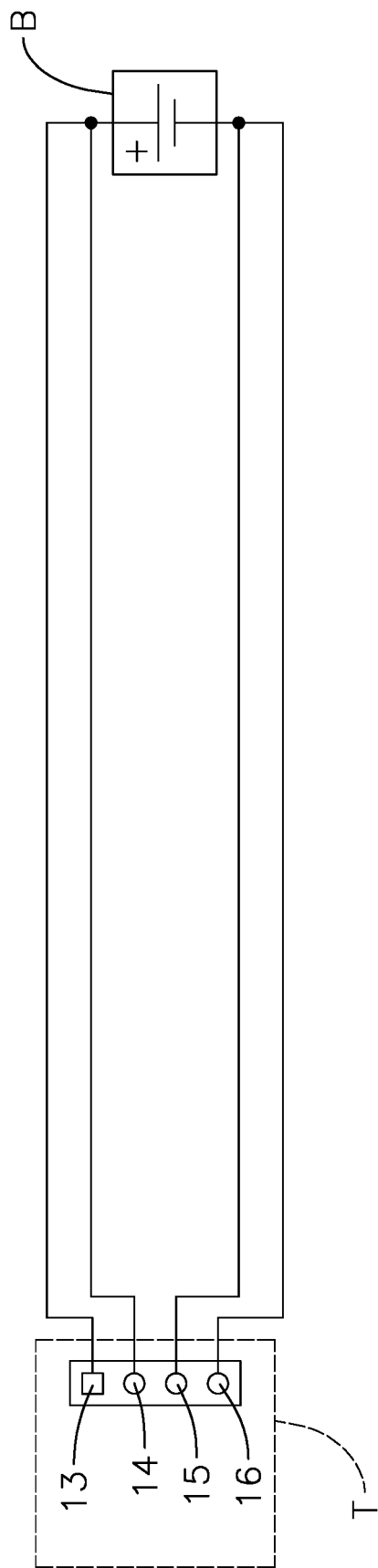


FIG. 1B

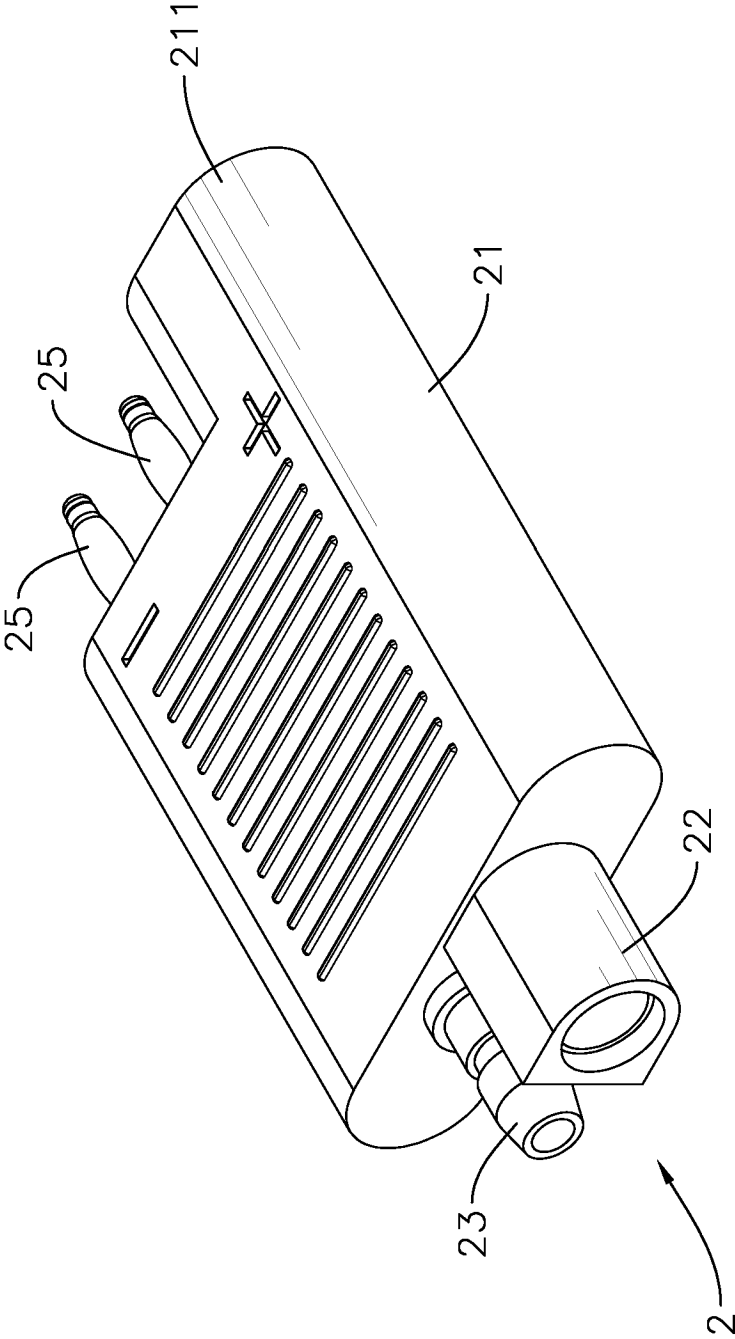


FIG. 2A

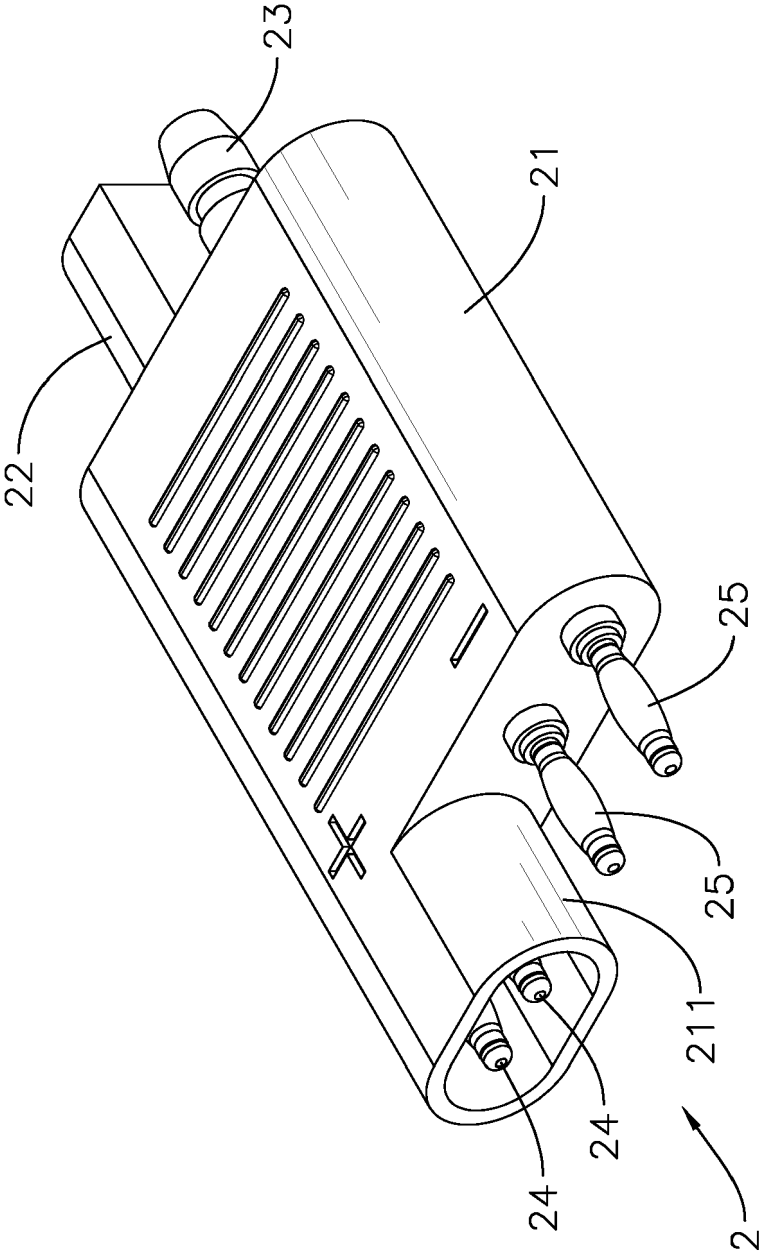


FIG. 2B

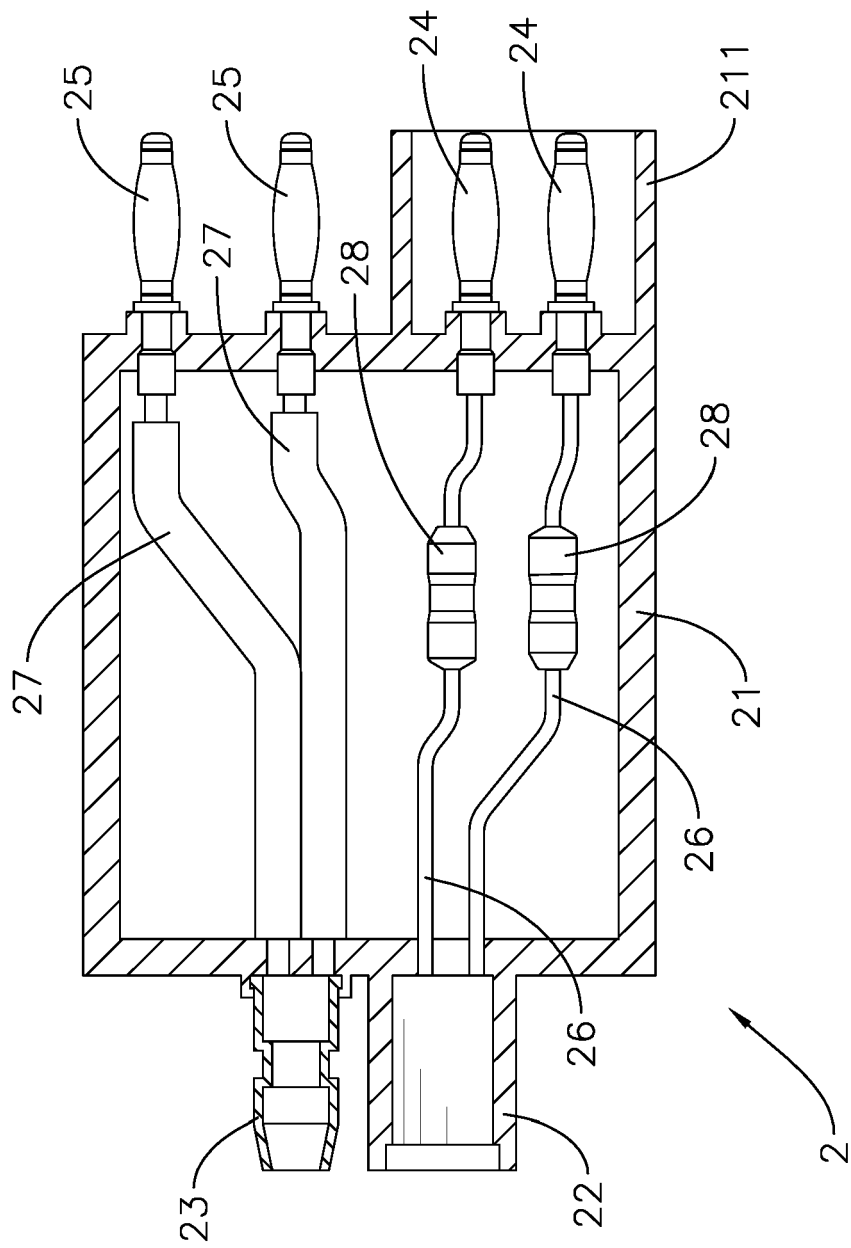


FIG. 2C

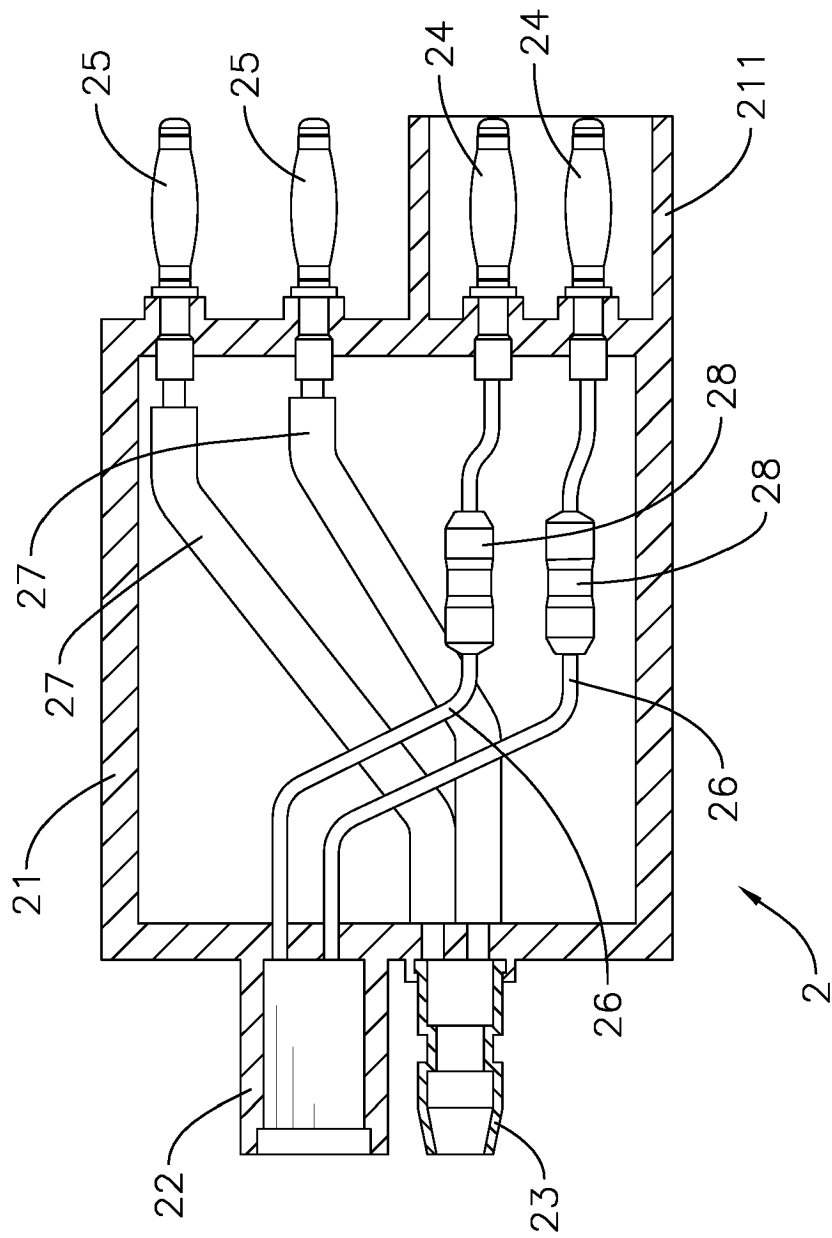


FIG. 2D

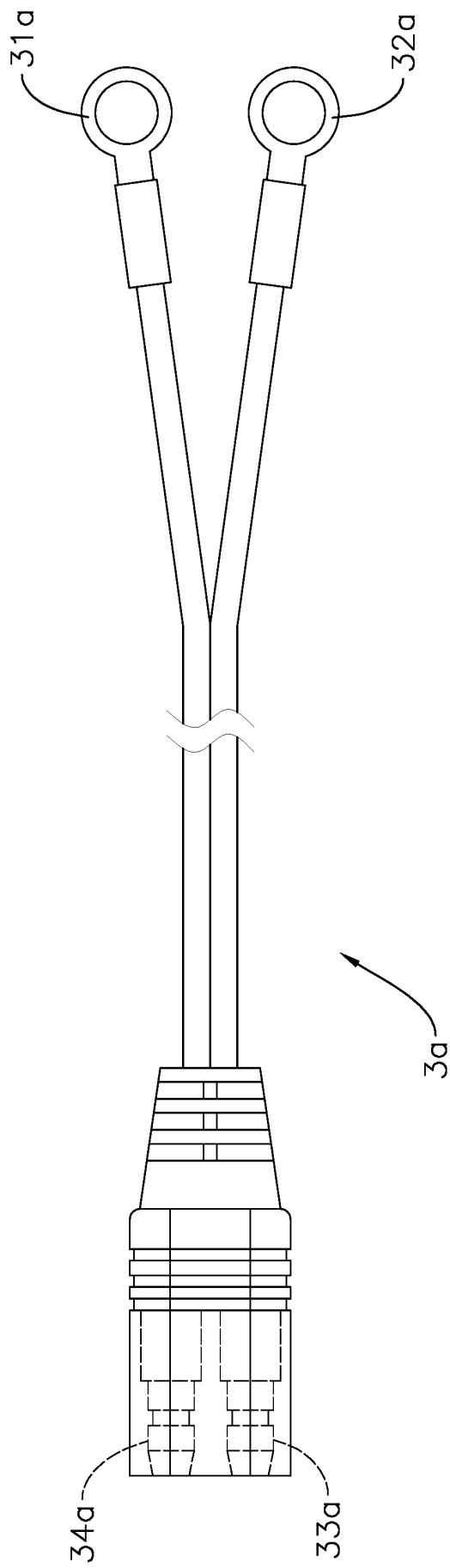


FIG. 3A

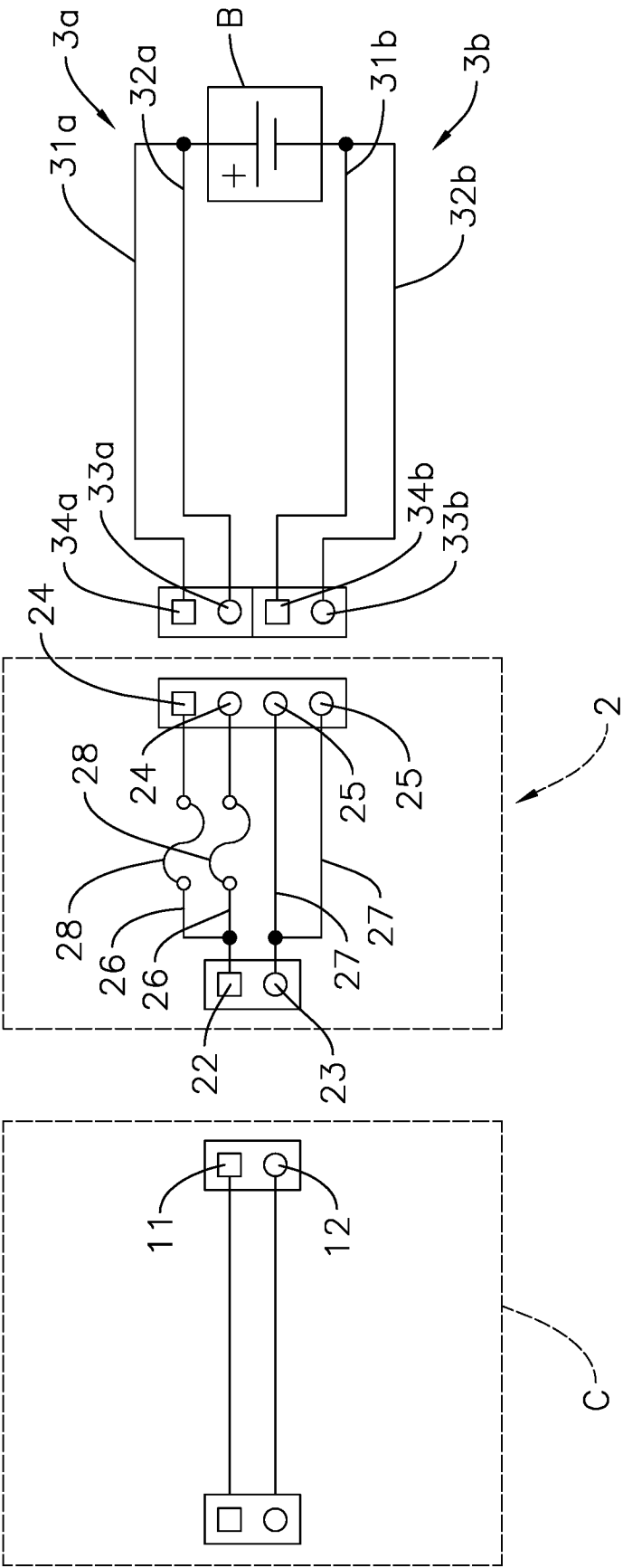


FIG. 3B

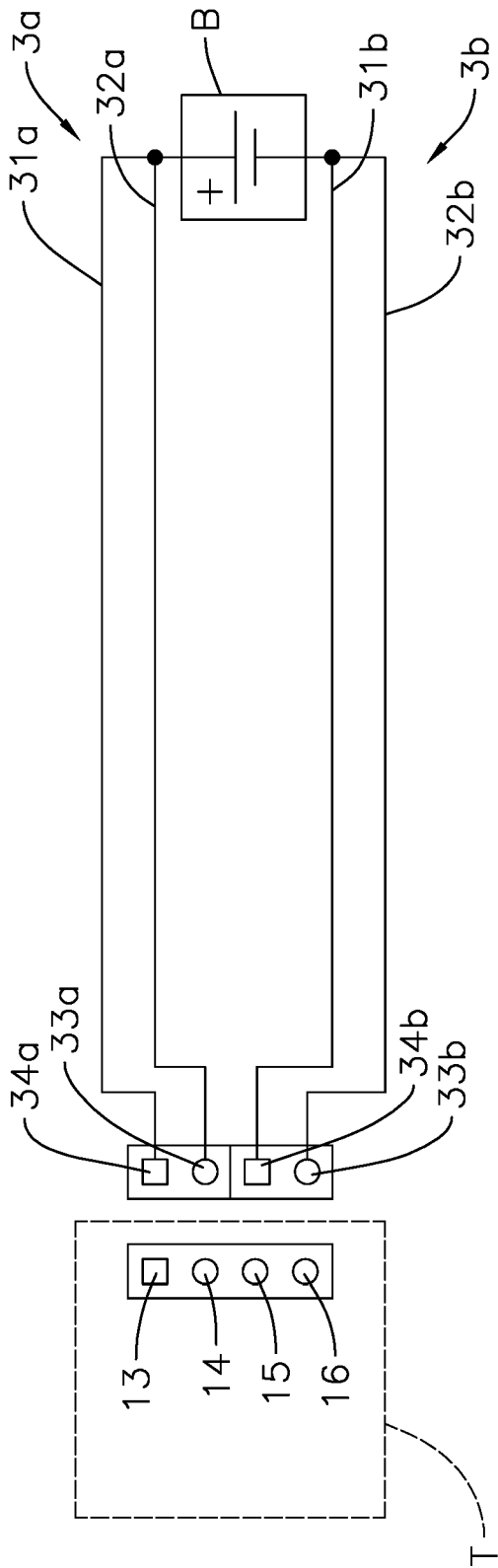


FIG. 3C

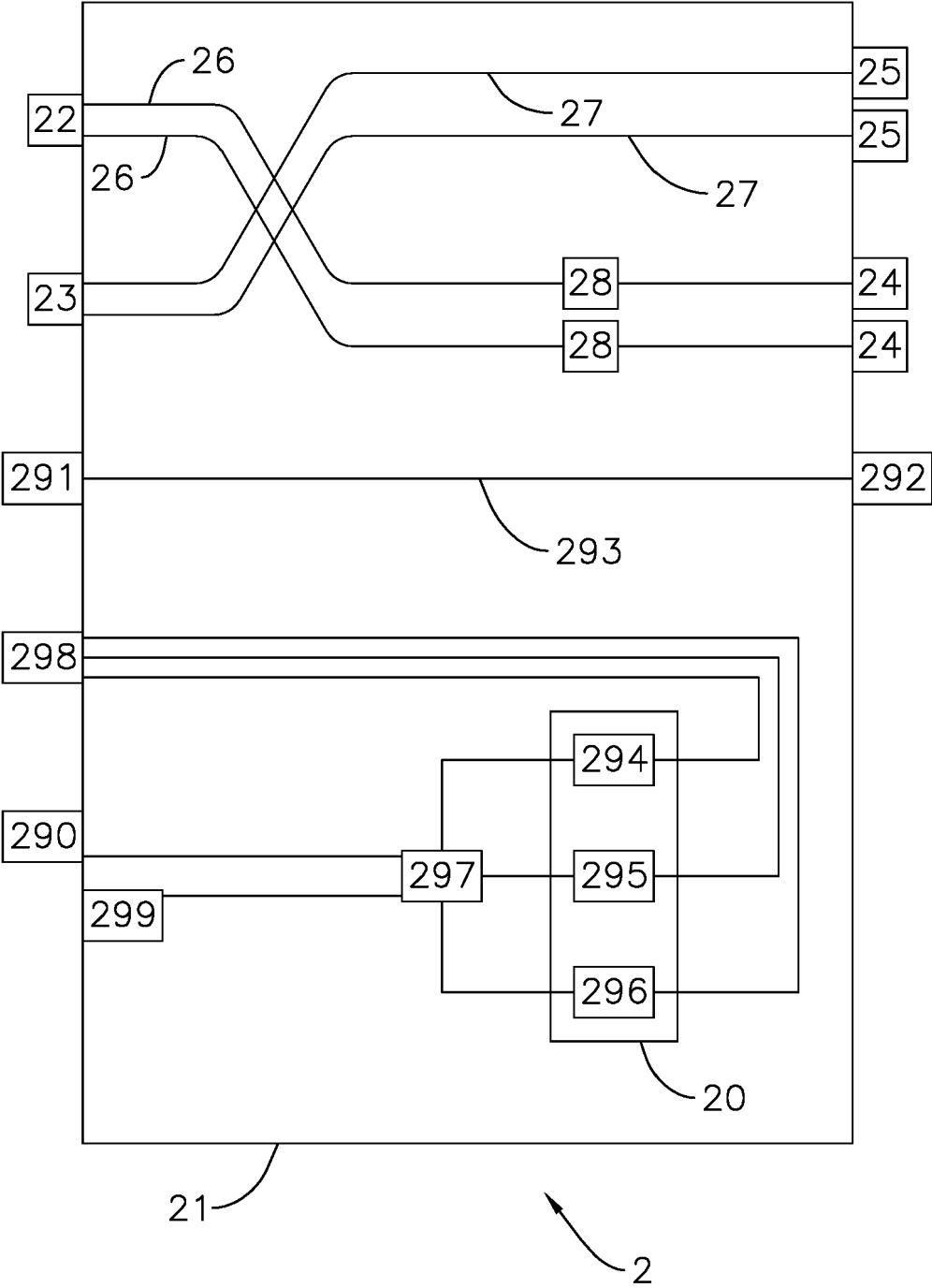


FIG.4

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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